

MAPS AND REPORTS OF THE FORT KEARNEY, SOUTH
PASS, AND HONEY LAKE WAGON ROAD.

LETTER

FROM

THE ACTING SECRETARY OF THE INTERIOR,

TRANSMITTING

*Reports and maps of the Fort Kearney, South Pass, and Honey Lake
wagon road.*

FEBRUARY 11, 1861.—Laid upon the table, and ordered to be printed.

DEPARTMENT OF THE INTERIOR,
February 11, 1861.

SIR: I have the honor to transmit herewith the reports and maps of F. W. Lander, superintendent of the Fort Kearney, South Pass, and Honey Lake wagon road, upon his operations during the years 1859 and 1860, and respectfully suggest that they be printed, and that two hundred and fifty copies be placed at the disposal of this department for distribution.

I am, sir, respectfully, your obedient servant,

MOSES KELLY,
Acting Secretary.

Hon. WM. PENNINGTON,
Speaker House of Representatives.

DEPARTMENT OF THE INTERIOR PACIFIC WAGON ROADS.

Reports of F. W. Lander, esq., superintendent of the Fort Kearney, South Pass, and Honey Lake wagon roads, for 1859 and 1860, made under the direction of the honorable Jacob Thompson, Secretary of the Interior.

WASHINGTON CITY, *March 1, 1860.*

SIR: Your instructions of March 25, 1859, directed me to proceed to the frontier and thence to the south pass of the Rocky mountains; to go over the road opened last year, make such improvement upon it as might be necessary; thereafter, to proceed to Honey Lake valley, by the Humboldt river route, for the purpose of obtaining a continuous survey over the whole road and further information of a route said to exist north of that river, or of such a route as might be developed by examination.

I was then directed to take immediate steps to close up operations at some convenient point, by disposing of all the public property in my possession to the best possible advantage to the government, to discharge such assistants as were not necessary for office service, and thence proceed to this place and prepare a final report of my operations.

The disbursement of the sum of five thousand dollars (\$5,000) was placed under my direction for the purpose of making peaceful arrangements with the Indian tribes through which this road passes; in reference to which I received special instructions from the Acting Commissioner of Indian Affairs, and was directed to report to him thereon. This Indian report has already been made to the Hon. A. B. Greenwood, Commissioner of Indian Affairs, and the accounts rendered.

As my report of January 20, 1859, embraced a description of the new road from the South Pass to the City of Rocks and an emigrant guide; and as at various points during the progress of the expedition of the present season I have fully informed you of its operations, this statement may be regarded as a brief recapitulation.

It was thought expedient to despatch an efficiently organized advance party, under the direction of Wm. H. Wagner, esq., the efficient and energetic engineer of the expedition, to explore and map the entire country north and in the vicinity of the Humboldt River valley. This party devoted the whole summer to exploration, and met with great success. The able report of Mr. Wagner, which is herewith transmitted, and one by the same gentleman on Indian affairs, (which has been forwarded to the Hon. A. B. Greenwood, Commissioner,) contain valuable information, and cover the subjects referred to.

It was also thought expedient to send to Salt Lake City with this advance party, Mr. C. C. Wrenshall, a gentleman who had already distinguished himself for energy and efficiency while connected with the expedition the year before. Mr. Wrenshall was directed to relieve Mr. J. C. Campbell, who had been in charge of that portion of the expedition which wintered in the Mormon settlements, and who was required for service with Mr. Wagner. Under his instructions Mr.

Wrenshall organized a party of Mormons, loaded a train with flour, collected the tools and other property left at Salt Lake, proceeded to the western end of the new road, and commenced the repair of it, working towards the South Pass. His operations have been eminently successful, and I recommend him to your favorable notice.

The main expedition, under my direction, reached the South Pass on the 24th of June. During its passage to that point large numbers of the returning and destitute emigrants to the Pike's Peak gold mines were met and relieved; many of these men were permitted to join the train, and were afterwards of service in repairing and completing the new road. On reaching the South Pass, Mr. E. L. Yates was left at that point with an express rider and a small party of employés in charge of the provisions and property moved up from Fort Laramie. His especial duty was to inform emigrants of the completion of the new road, to give them information about it, and to furnish guides to those who desired to adopt it. He has performed this service to my satisfaction. From the delay in printing last year's Emigrant Guide, transmitted to the department January 20th, 1859, a great deal of labor has been thrown on the expedition in preparing guides, one thousand of them having been written and furnished emigrants.

Timothy Goodale, a mountaineer who resided at the South Pass, has rendered efficient aid to Mr. Yates and to the expedition, and has been specially recommended by me to the honorable Commissioner of Indian Affairs as a suitable agent to reside in that country and to act between emigrants who may desire to take the new road and the Indians who inhabit the country through which it passes. A slight affray occurred between Goodale and a party of traders from Salt Lake City, who endeavored to prevent emigrants from taking the new road, and who gave them false reports in regard to it. Much difficulty was experienced by emigrants in crossing the main Green river; they were efficiently aided while the expedition remained at that point by B. F. Burche, wagonmaster of the train, and his principal assistants. After the train left the river a new crossing was adopted by some emigrants a few rods above the one staked out by me. Below this new ford there was a rapid current and swimming water. One of the emigrants was swept off the sand bar into this deep water and drowned. On hearing of this accident a new road was laid out five miles above the usual crossing, over which trains afterwards crossed with safety.

The season has been an unusual one; the mountain streams swollen by constant rains, and Green river higher than ever known before in the memory of the oldest mountaineers. These rains compelled the necessity of moving the new road from where originally built along the river bottoms, which became impassable, to the high ground in their vicinity. Large jobs of grading were required, and at one time over one hundred and fifty (150) men, hired from among the emigrants, were employed upon the road. It may now be regarded as an excellent highway, and passable under any event or contingency arising from such causes. Over nine thousand emigrants have signed a petition requesting that Green river may be bridged, and as this road will undoubtedly become the great thoroughfare of stock-drovers

and ox-team emigrants to California and Oregon, the subject is well worthy of your consideration. The river has a quick-sand, shifting bottom, and is undoubtedly dangerous at extreme high water to inexperienced travellers who do not understand hunting a ford. But all the great stock-drovers crossed the stream this unprecedented season, and my own train and the wagons of the expedition, constantly passing backwards and forwards to the South Pass for provisions and supplies, never experienced any difficulty.

In my own opinion there are numerous small mountain streams which, towards the close of the emigration, became bad and muddy crossings from the immense travel which passed over the road, and which might be bridged as profitably to the emigration as Green river.

It may be apprehended that the mountain traders, who have already moved their stations to this new road, will place common pole bridges upon these streams and charge toll for them. Green river and these smaller streams cannot be bridged for less than thirty thousand dollars, (\$30,000,) and as your instructions did not direct me to do other than build a passable wagon road, I have not felt justified in incurring this additional expense without further instructions.

In reference to further instructions for this purpose, I refer to that portion of my report embraced under the heading of "All lines of travel west from the South Pass."

The main expedition joined that of Mr. Wrenshall, who had repaired and completed the western end of the road, on the 1st of August. Immediate arrangements were made for breaking up the party and discharging the employés. Wrenshall was directed to return to Salt Lake City, dispose of the public property in his charge to the best advantage, pay off employés, settle all bills out of sales of property, and report to me at Washington City. He was instructed to take charge of the property at the South Pass, dispose of it, or receive the report of Mr. E. L. Yates as to the disposition of it.

In the meantime a small party was despatched to the States under the direction of B. F. Burche, wagonmaster of the expedition. This party included those individuals who did not desire to go on to California. They were allowed to purchase at cost, paying for it out of the amount due them, transportation, and were given rations for their return trip.

The expedition then made rapid marches towards Humboldt river for the purpose of joining Wm. H. Wagner and the advance engineering corps, and overtook that party on the 31st of August. After halting one day the train moved forward to Honey Lake valley.

On its way to Honey Lake valley service was rendered to emigrants attacked by Indians. Full details of the circumstances of this collision, which resulted in loss of life, are embraced in my report to the honorable Indian Commissioner of February 18, 1860.

On arriving at Honey Lake valley the train was halted for two weeks, that the animals might recruit prior to a passage over the mountains to California. During this time I visited the principal

stock markets of that State, and concluded to sell the mules, wagons, and harness at Marysville and Sacramento City. The animals brought a profit on first cost.

While closing up the affairs of the expedition and paying off employés from sales of property, Mr. Wagner was directed to report in Washington City, and brought on to you my preliminary statement of the result of the summer's work.

A Bierstadt, esq., a distinguished artist of New York, and S. F. Frost, of Boston, accompanied the expedition with a full corps of artists, bearing their own expenses. They have taken sketches of the most remarkable of the views along the route, and a set of stereoscopic views of emigrant trains, Indians, camp scenes, &c., which are highly valuable and would be interesting to the country. I have no authority by which they can be purchased or made a portion of this report.

A map of the western division, drawn by Mr. John R. Key, under the direction of Wm. H. Wagner, esq., is herewith transmitted. An embodiment upon one sheet of the eastern, central, and western division of this road would seem expedient.

All lines of travel west from the South Pass.

In reference to any further expenditures upon this road, I have to lay before you the following statement, which, in view of your very particular instructions, both to Superintendent Magraw and myself, becomes highly important.

In the "Alta California," of September 20, appeared the following statement:

"CAMP ROUND PRAIRIE, U. T.,

"(En route for Fort Leavenworth,)

"August 20, 1859.

"EDITORS ALTA: Believing that the publication of the enclosed itinerary of my return route from Genoa to Camp Floyd, in a paper of the extended circulation of the *Alta*, ought to prove of value to overland emigrants, I send it to you for this purpose. My outward route was greatly superior to what I had been led to expect from the popular notions of the country traversed; but my return route, which was still farther south, I found still better. Emigrants will find either of these routes about three hundred miles shorter than the old City of Rocks and Humboldt route, and about one hundred and forty-four miles shorter than the present postal route. Besides, from all I have heard and read of either of these routes, there can be but little doubt that in all the essentials of a good emigrant road, namely, wood, water, and grass, it will be found incomparably better. Both the outward and return route have these requisites to a superior degree; but in point of grade, the return route is much the best, and I therefore recommend it in preference. It is this route an itinerary of which I enclose. Stock-drivers will find the route of great value early in the spring and late in the fall as well as in the summer.

"Very respectfully, your obedient servant,

"J. H. SIMPSON,

"Captain Topographical Engineers."

You have called my attention to a letter of Chief Justice Eckles, of Utah, addressed to you on the subject of Indian massacres. In this letter appears this remarkable paragraph :

“The road by this camp (Camp Floyd) recently made by the army is more than three hundred miles the nearest and much the best road from the States to California, and the public would soon follow it but for *interestedly false representations made to emigrants.*”

The annual report of the honorable Secretary of War contains the following :

“Captain J. H. Simpson, of the Topographical Engineers, has, during the past season, explored and opened two new routes from Camp Floyd to California, either of which is about two hundred and fifty miles shorter than the old emigrant route by the way of the Humboldt river, and far better for grass, wood, and water. Over both these routes he conducted a party of sixty-five men and a train of fourteen wagons, and, since his return to Camp Floyd, many emigrants with large herds of cattle have passed over the route by which he returned, which is the better of the two. Itineraries for both have been furnished to the public through the press in California and Utah. The saving in time of travel by these roads to emigrants for California is about fifteen days, and for the mails about four. The saving in stock and draught cattle on these routes over those formerly travelled, owing to pure water and abundant grass, is estimated at twenty-five per cent.”

All these statements refer to roads laid out by Captain J. H. Simpson, south of Salt Lake City, across the lower desert and intervening mountains which extend from Camp Floyd to Carson Valley.

They are not confined to the fact that the route described is an excellent mail road for winter travel, which is universally conceded by all the mountaineers, but absolutely direct and advise the overland emigrants to take it. The earlier emigrants would arrive upon it the last of July. The emigration would travel it during August and September. At this time the snow pools and springs of the lower sand plains are in a measure dried up, and tired stock would suffer greatly for grass and water. It is at the season when the cattle of California, Oregon, and Utah are driven into the more elevated mountain valleys. The sufferings already encountered by the less experienced of the Pike's Peak emigrants, who were directed to travel other routes than the well-known ones of the Arkansas and Great Platte Valleys, demand that a full statement of facts, not only in regard to the road you directed me to build, but also of the Simpson route, should now be laid before you.

In previous reports to you I have never thought it my duty to refer to other routes than the one in my charge, and in fact have ever confined myself to explicit statements as to the work itself. In a guide written to give information to overland travellers, and embraced in my report to you of last year, the only advice given was :

“You must remember that this new road has been recently graded and is not yet trodden down ; and, with the exception of grass, water, wood, shortened distance, no tolls, fewer hard-pulls and descents, and

avoiding the desert, will not be the first season as easy for heavily loaded trains as the old road, and not until a large emigration has passed over it.

"All stock-drivers should take it at once. All parties whose stock is in bad order should take it, and I believe the emigration should take it, and will be much better satisfied with it, even the first season, than with the old road."

My instructions to Edmund L. Yates, esq., road agent of the South Pass, written in reply to this notification, that interested individuals were endeavoring to turn emigrants away from the new road, informs him that, "respecting the traders of Green river and Mormon agents, we cannot do more than simply inform the emigrants of the actual facts in regard to our road. Let them choose which of the two roads they care to travel; it is nothing to us; we simply and plainly obey instructions from the department; therefore do not persuade any one to take the road, although we know it to be the best."

The route has never been reported by me as suitable for an overland mail, but I have repeatedly stated that it was utterly unfit for an overland mail, and in my report of January 20, 1859, said: "If it is to be held that the new road is to be used as a winter mail route across the continent, then it is not properly placed. It is especially and emphatically an emigrant road, so located as to avoid the tolls of bridges, alkali plains and deleterious and poisonous waters, and to furnish fuel, water, and grass to the ox-team emigration. And it is neither the very shortest nor the very best which would be selected for a winter route in the vicinity of the same parallel of latitude. The overland emigrants reach the mountain sections in the latter part of July and August. The chief difficulties and obstacles which they encounter arise from the extreme dryness and heat of the artemisian deserts. The passage of the line is located nearer to the base of the snow-capped mountains, in a more elevated region, richly grassed, and along the great summer trails of the Indians, is favorable to their health, the preservation of their stock, and gives them abundance of pasturage, with water at short intervals from mountain streams. These very streams, stocked with mountain trout, soon disappear, or become stagnant pools after reaching the sand plains."

And, as a doubt appeared to exist in the minds of some parties as to whether the appropriation for building this road through the South Pass was made for the purpose of improving mail facilities or to aid the overland emigration, I took particular pains when in California to inquire the origin and course of the movement which eventually led to the passage of the bill.

It appears that in 1856 a petition, signed by seventy-five thousand (75,000) citizens of that State, and praying that a road might be built through the South Pass, reached Congress. It was the result of a series of movements commenced in 1846, and caused by the sufferings of a large party of emigrants who arrived too late to cross the Sierra Nevadas. In 1849 and 1850 the subject excited the public mind in connexion with the interest taken in the hardships of the overland travellers of those years. It continued to be agitated, and meetings were held in 1852, '53, and '54. The plan of memorializing

Congress was at length suggested, and at a large assemblage in San Francisco carried out. The names on the memorial, which was sent through the upper counties of California for signers, at length covered reams of paper. It was remarked by the Hon. John B. Weller, when presenting this petition in the Senate, that it was the largest, by many tens of thousands of names, ever introduced into that body.

Whatever changes may have taken place in the public mind in the east in reference to the purpose of this bill, it is evident that the intention of those who first sought its passage was to procure the means of building a road to facilitate overland emigration.

As to the choice of route along the great river valleys, none know better than the class of individuals who signed the memorial what line of travel was required. They were undoubtedly themselves, at least the greater part of them, overland emigrants. The road was first laid out by the best explorers in the world—the old beaver-trappers and hunters of the fur companies. As an example of the want of knowledge of theoretical explorers, as compared with these men who pass year after year of their lives in the interior, I remember passing early in the month of June, 1854, over a well grassed and watered country southwest from Fort Hall. In September, 1857, I again made the trip, proposing to halt at night upon the same stream of water; I found it entirely dried up and the whole region an arid and almost grassless desert.

The new cut-off road was constructed at great cost by clearing out timber and grading the mountain sides expressly to throw the emigration away from such long stretches which divide the larger river valleys, and in August and September become deserts without water. A leading newspaper of California very justly remarks that "The wagon road bill was passed as an encouragement to spring emigration—to benefit the ox-team emigrant rather than to build a mail route. The humbler class of emigrants of small means makes preparations and leaves Missouri and Iowa in April, designing, with a single team, or without a relay of animals, to reach California or Oregon in one season. After passing over what is called the mud section, reaching about two hundred and fifty miles from the border, no other obstacle is encountered of great difficulty until the plains near the Sweet Water are reached. Here commences the barren region, increasing in sterility to Ham's fork of Bear river. The new overland cut-off road just completed by Superintendent Lander avoids this desert region, and enables the animals of the emigrant to retain their strength until the upper Humboldt is reached. But it is now late in the dry season; the whole country parched up, water existing on the lower plains and even in many places in the bed of the Humboldt only in pools. While the relay animals of an overland mail, changed at short distances and starting fresh, can make passages of twenty, thirty, and even fifty miles, without water, such trips have become almost impossible to the travel-worn teams of the emigrant. It is only after a week's rest at the last meadows of the Humboldt and cutting grass for his broken down animals that he dares attempt the desert just eastward from our own mountains; for this last obstacle, and the greatest, has not yet had one dollar expended on it by the

government. The new cut-off road extends westerly from the South Pass. It was laid out over elevated mountain meadows to furnish emigrants grass and water during the dry season. It would, therefore, though an excellent road for emigrants during the heat of summer, probably be completely impracticable as a winter mail route."

I reported all these facts to you, as early as 1857, as the result of a long exploration by detached parties of the whole country between the South Pass, the waters of the Great Basin, and the Pacific. In that report I said that I had discovered two excellent lines, both of them at the extreme verge (north and south) of the limits named in my instructions. The southern one would be excellent for winter mail, when furnished with forage stations, but would not avoid the Green River desert; the northern one was a line "so abundantly furnished with grass, timber, and pure water, with mountain streams abounding with fish, plains thronged with game, and so avoids the deleterious alkaline deposits of the south, that it may be described as furnishing all that has been long sought for through this section of the country—an excellent and healthy emigrant road, over which individuals of small means may move their families and herds of stock to the Pacific coast in a single season without loss."

Thirteen thousand emigrants travelled the road the present year; over nine thousand—all the males of the trains—signed papers of which the following are copies:

"We, the undersigned, emigrants to California and Oregon, having just passed with our wagons and stock over the new government road, from the South Pass to Fort Hall, (called Lander's cut-off,) do hereby state that the road is abundantly furnished with good grass, water, and fuel; there is no *alkali* and no desert as upon the old road, and while upon it our stock improved and rapidly recovered from sickness and lameness. We were much surprised at the great amount of labor that had been done in cutting out the timber and bridging and grading the road, and in all respect it more than met our expectations, especially those of us who have heretofore travelled the other routes. But we would most respectfully suggest that a bridge should be erected, as soon as possible, over Green river, the fording of which is dangerous and the cause of much trouble to the emigration, and in one instance the loss of life. We have been treated kindly, and in every case when the circumstances required it aided and assisted on our way by the Wagon Road Expedition; and we have likewise received the kindest treatment from the Indians; and we advise the overland emigration to California and Oregon to take this road as the shortest and best adapted for the comforts of the traveller and the preservation of stock, especially if the government, in view of the many advantages of this route, should cause Green river to be bridged."

Signed by Ferguson Chappell and over nine thousand others.

"FORT HALL, OREGON, *July 15, 1859.*

"This is to certify, that we, the undersigned, have travelled over the Pacific wagon road, better known as Lander's cut-off, and find

it a very acceptable road for emigrants. We think it preferable to any other road across the mountains in many respects. Most of the way it is well worked, and with a bridge across Green river (the only stream at all troublesome) it would be as good a road as many now travelled in the States. It is some five days' travel shorter than any other road across the mountains; there is no desert to cross on this route, no alkali to kill your stock, but instead, plenty of good water, abundance of grass, and wood enough to satisfy any reasonable man.

"Many of the undersigned have crossed by other routes and give this the preference."

Signed by William Glaze and nearly three hundred others. The originals, with the accompanying affidavits, are on file in this office.

The leading papers of California have most emphatically endorsed the road. The Democratic Standard says: "Emigrants pass by it over thousands of acres of fine mountain grass, and a well watered and timbered country. The road is of equal advantage to Oregon and California. Thus, after years of persevering effort, a great work, important to the whole Union, but most especially useful to California, has been executed. To the able, efficient, and popular Secretary of the Interior we may give the credit of this great work."

The "Alta California," the "Sacramento Union," the "California Express," the "Evening Bulletin," the "Plumas Argus," with many other journals, and the leading papers of Oregon, endorse it as fully.

In the following correspondence I call your attention to the important statement of the well known mountaineer, Timothy Goodale.

The letter of Major Lynde, embodying the result of the observations of an old officer of great merit and of long experience in interior life, is likewise important.

"WASHINGTON, *February 1, 1860.*

"SIR: In reply to your request that I would state to you, in writing, my opinion as to which of the overland central routes is the best, I have to say, that so far as my knowledge of the country goes, the new route opened by you, from Camp Floyd to Carson City, is the best known road for an overland winter mail south of the pass at the head of Marsh creek.

"The pass at the head of Marsh creek was named McDougall's Gap by Lander in 1857. There is no road through it, only a fair pack trail. 'Jim Baker,' 'Bad Hand Martin,' and the rest of the mountaineers in that country, think it the easiest winter pass over the Snake river. When you are on Snake river there is no trouble about snow. This pass, so far as I can understand what is wanted, would be first-rate for a railroad.

"There is a good deal of yellow pine timber in it, and the country is sheltered so that the snow don't drift. I think it would be going too far round for Salt Lake City. West from Salt Lake City your road is the best for a mail of all the southern ones, because it avoids the Goose Creek mountains. These have always been bad for winter travel. I think the old road by the Platte, by Lander's new cut-off, and by

the Humboldt, is a very much superior road to yours for stock-drivers with large bands of cattle, and for the ox-team emigration. When the Humboldt river is high, the early emigrants generally take the south side of the river, near the mountains, but the road is hilly and quite bad. They then find plenty of grass and water. Later, when the springs get dry and the grass is scant—say in the last of July, August, and September—they take the valley of the river. There is then on the bottoms more grass than is found on any other road. The valley is a mile or two wide, and there are very large meadows of grass and laying up grounds. They can stop, too, at Lasson's meadows and make hay or cut grass for crossing the strip of country which lies between the bend of the Humboldt and Carson valley or the Mud lakes. I suppose you have to cross this desert on your road for the south. I don't see how large bands of cattle can get enough water late in July, August, and September, on your road, especially worn down and foot-sore cattle.

"Those that have come all the way from the States at about that time can't make long marches between water, and need a good deal of it to keep them up.

"As to your road being shorter, surveyors would know best. It can't be much shorter if we go through the South Pass.

"It would be shorter if we could get through the Parks—that is, straight across from Denver City over to Camp Floyd.

"The trouble about getting across is the amount of timber and the rough country. I have travelled the best known trail across a good many times. This cut-off would be very scant of grass for a large emigration—say such as goes every summer through the South Pass. For a mail, the mountain would be right high. I started over once, the 15th of May, and got into the worst of the snow on the head of Piney; it was very bad in the Divide till I got to the head of the Arkansas. I got through with difficulty. I had wintered on Grand river. There is another big mountain between Grand and White rivers. This I did not have to cross. Besides these mountains, there is the great mountain west of these valleys that divides them from Camp Floyd or the Salt Lake basin.

"I think this whole country ought to be explored before the road is built.

"Perhaps if the timber were burnt out it might do for emigrants. It is my belief, now the Lander cut-off is built, avoiding the bad grass country that reaches from the South Pass to Ham's Fork, emigrants and stock-drivers will stick to the old road. There is more grass on it than any route I know; emigrants can't afford to haul forage. They don't like to go near Salt Lake City, because they are charged high for the Mormon grass and the country is too much settled up to get it free. I think if government builds the southern road through the Parks, Green river and some other streams should be bridged.

"Lander's road keeps the emigration free of tolls.

"I don't call his road good for an overland mail from where it leaves Green river. It is laid out high up in the mountains over the meadows where the Snake Indians summer their ponies. I have seen about thirteen thousand emigrants take it this year. They all bragged on it, and it saved a great deal of stock.

"In my opinion, an emigrant road to furnish grass and water for large bands of tired stock in July, August, and September, and a road over the low plains where snow don't fall deep in winter and where mules can be supplied from way forage stations, are two different things, and must be laid out in two different places. I think there is a good chance for a telegraph, if timber is wanted, on the straight route across the Parks.

"Emigrants don't care how far they go round if they get plenty of grass and water every few miles.

"There is a very good route from Denver City round by Laramie Plains and through Bridger's Pass, by the Cache le Poudre. This would be favorable for a winter mail. It is not so good for emigrants as the South Pass, because the bad country avoided by the Lander road must be passed over. Emigrants to Oregon this way could go the Lander road. It would be a little out of the way through to California.

"Very respectfully, your obedient servant,

"TIM. GOODALE.

"Capt. J. H. SIMPSON,

"*Topographical Engineers.*"

"WASHINGTON, February 2, 1860.

"DEAR SIR: Since your conversation with 'Goodale,' and receiving his communication, written at your request, on the subject of the various wagon roads of the central route, may I respectfully inquire if you concur in the following statement of the report of the honorable Secretary of War:

"Captain J. H. Simpson, of the Topographical Engineers, has, during the past season, explored and opened two new routes from Camp Floyd to California, either of which is about two hundred and fifty miles shorter than the old emigrant route by the way of the Humboldt river, and far better for grass, wood, and water. * * * *

"The saving in time of travel by these roads to emigrants for California is about fifteen days, and for the mails about four. The saving in stock and draught cattle on these routes over those formerly travelled, owing to pure water and abundant grass, is estimated at twenty-five per cent."

"The honorable Secretary conveys the idea that these routes are shorter from the States to California than the old road and better furnished with grass and water; he probably means Camp Floyd. I have never yet known that emigrants go there.

"An editorial of the Sacramento Union, of California, December 5, 1859, says: 'The whole interior section of country was once fully and thoroughly explored by the beaver-trappers of the old fur companies. * * * * *

"These experienced men adopted the great valleys of the river Platte, Snake river, and the Humboldt, because the grass in these valleys was abundant for the animals of their large trains. * * *

"The subject of the old roads and the Simpson routes is very much

more important than might at first glance appear. If the tens of thousands of animals of even one year's emigration were to be turned over a route not abundantly furnished with grass and water, the result would be detrimental to one of the chief sources of the prosperity of our State.

"If there is any doubt of there being grass and water enough upon the Simpson route for a large emigration, that question should be settled before it is made a main emigrant road."

"Judge Eckles has written a letter to the honorable Secretary of the Interior stating that your road is three hundred miles nearer and much better than the old one. All these reports will cause the less experienced emigrants to take your road. The question is, are you ready to advocate it as suitable for the ox-team emigration? If so, there is nothing more to be said upon the subject.

"Very respectfully, your obedient servant,

"F. W. LANDER.

"Capt. J. H. SIMPSON,

"*Topographical Engineers.*"

"WASHINGTON CITY, *February 4, 1860.*

"DEAR SIR: Your letter of the 2d instant I received yesterday.

"Be assured that it has been the farthest thing from my mind to do injustice to you, or any one else, in what I may have reported of the explorations I have recently made between the Rocky mountains and the Sierra Nevada; and that it shall be my pleasure to set the matter right before the public as soon as practicable. * * * *

"Very respectfully, yours,

"J. H. SIMPSON."

"WASHINGTON, *February 4, 1860.*

"DEAR SIR: I have the honor to acknowledge the receipt of your favor of February 4, 1860. * * * *

"As to the matter referred to, it can in no way affect me at all. I think it best to gather such papers as I may be enabled to, into statistical forms, and leave the department free to act as it may choose in the premises.

"I am, very truly and respectfully, yours,

"F. W. LANDER.

"Capt. J. H. SIMPSON,

"*Topographical Engineers.*"

"WASHINGTON CITY, *February 11, 1860.*

"DEAR SIR: I have the pleasure to acknowledge the receipt of your letter of the 4th instant, which has only just come into my hands.

* * * * * Your letter came too late to prevent a communication to the public which had already been placed in the hands of the printer, and will appear in to-morrow's Constitution. I trust you, as well as Mr. Campbell, will find that I have not been backward to repair any wrong which I unintentionally may have committed in my representations to the Secretary of War.

"With best wishes for yourself and Mr. Campbell,

"I remain, very truly, yours,

"J. H. SIMPSON.

"F. W. LANDER, Esq.,

"*Present.*"

"WASHINGTON, *January 27, 1860.*

"DEAR SIR: In reply to your interrogation regarding the emigration which passed over the new road built by you under the direction of the honorable Secretary of the Interior, I have to state that I passed over that portion of the new road extending from Ross' Fork to the great valley of Salt river. I found it abundantly timbered and abounding in grass and water.

"The expedition in my charge was sent out from Camp Floyd for the purpose of protecting emigrants from Indian aggression. Nearly all the emigration was met on its way to California. Stock-drovers and emigrants who had passed over the old line of travel were unanimous in praise of your new route. I heard no dissentient voice, and have no doubt that the construction of this road, avoiding the sand plains, the deleterious waters, and the toll bridges of the south, will prove of vast importance to the overland emigrant to California and Oregon.

I have seen as many as three hundred wagons in a day, and at least fifteen thousand head of stock. I am of opinion that this vast cavalcade cannot properly forsake the old routes of travel along the great river valleys. Your cut-off road was the single thing needed in the passage from the South Pass over the ungrassed region of the Big Sandy or Sublett's desert, enabling the emigrants to entirely avoid this terrible country and to rest and recruit their stock at the very point heretofore most dreaded by travellers.

"Very respectfully, your obedient servant,

"J. LYNDE,

"*Major 7th Infantry.*

"F. W. LANDER, Esq.,

"*Sup't U. S. Overland Road via the South Pass.*"

I subjoin the statement of Thomas Pitt, one of the best-known conductors of trains on the continent, and a most reliable and conscientious man:

"I certify that the route known as the Captain Simpson route is not suitable for oxen or other horned cattle, either driven loose or yoked, after the month of July. I made the first trip over this route in

1854 ; have passed over the route and changed the line of travel five times ; was a cattle-trader at Ragtown, Carson Valley ; have been in charge of large bands of cattle crossing the plains for many years, and drove one herd of one thousand three hundred and twenty-five to California last year.

“T. D. PITT.

“WASHINGTON, D. C., *December 29, 1859.*

“Witness : JOHN R. KEY.

“Not one man in five thousand knows what a tired ox can drink in twenty-four hours. The quantity is enormous, and desert springs don't answer at all late in the season.

“T. D. PITT.”

The following statement, signed by sixty emigrants, may also have its force :

“The undersigned, emigrants from Iowa and other States to California, desire to state, for the benefit of those who may emigrate hereafter, that they travelled the road leading by Salt Lake and found it very mountainous and rough, and most of the streams on said road were bridged and ferries established, over which exorbitant tolls were exacted for the passage of trains and teams, and where there were no bridges or ferries over the streams, the fords were not only difficult but dangerous. They would also state, for the benefit of those who may emigrate hereafter, that they were compelled to pay from twenty-five cents to five cents per head a night for pasturage of their stock at Salt Lake and as far up as Bear river, a distance of nearly one hundred miles. That for about one hundred and twenty-five miles from the South Pass towards Salt Lake City the country was nearly destitute of grass and might almost be called a barren waste, and the road strewn with carcasses and bones of dead animals lost the present and past seasons, caused, doubtless, by the great scarcity of grass, and they specially advise all future emigrants not to travel the Salt Lake road.”

Signed by John E. Movers and fifty-nine others.

Of this country, southwest from the South Pass, Lieut. Col. P. St. George Cooke, of the Utah army, in an official report, said :

“I have one hundred and forty-four horses, and have lost one hundred and thirty-four. Most of the loss has occurred much this side of the South Pass, in comparatively moderate weather. It has been of starvation. The earth has a no more lifeless, treeless, grassless desert ; it contains scarcely a wolf to glut itself on the hundreds of dead animals which, for thirty miles, nearly block the road with abandoned and shattered property.”

It was this region which the Interior Department road was built expressly to avoid. Our road passes directly west from the Pass, the old roads southwest. All overland travellers desiring to take the Simpson road must, therefore, cross this terrible range of country, unless a new route is discovered westward from the Denver City

mines. It is highly important to the country that an appropriation should be made for such an exploration. It would give great character to the Simpson road, at least as a mail route.

But we must not be led astray by a mere supposition. Goodale's letter informs us that it is a very open question whether a new route westward from Denver City exists. It would cost thirty thousand dollars to properly explore for it. The estimate of cost of building cannot be made until it is explored. It is a subject more properly connected with the Simpson route than with the one I am treating.

As to distance, after passing over the desert, the Simpson road is only four miles nearer than the Interior Department road to Carson Valley, a point to which the Interior Department road is not directed.

But by the Simpson Guide we are informed that in several instances the emigrant must drive more than this four miles off the road to grass and water.

But this is the especial explanation. There are two points at the eastern boundary of California for which the emigration has hitherto travelled. The one is Honey Lake, to which the law of Congress directed the extension of the Interior Department road; the other is Carson Valley, at which the Simpson road terminates. When the emigration reaches Honey Lake it goes over the mountains to California, much of it to take up the unoccupied lands of the northern counties of that State. Were it to go to Carson Valley after reaching Honey Lake, it must absolutely descend parallel with and one hundred (100) miles along the eastern boundary of California. From the Simpson road it must, in like manner, ascend one hundred (100) miles north to reach Honey Lake. The clearest statement would, therefore, be, that to the eastern boundary of California the Simpson route from the South Pass is eight hundred and forty-six (846) miles in length; the Interior Department road from the South Pass to the eastern boundary of California is eight hundred and four (804) miles in length.

As to grass and water over the two lines, the animals of our own expedition, which aided in constructing the road in the mountains and then crossed the continent, arrived in California in such order as to sell at a large advance on first cost.

I wish most explicitly to state that Captain Simpson, in my opinion, is the last man in the world who would willingly confuse the public mind on any subject whatever. He has recently made public the following letter:

" WASHINGTON CITY, *February 8, 1860.*

" MESSRS. EDITORS: From motives, as I trust, of public good, and a desire to do justice to officers of government who have been zealously and efficiently engaged in works of public benefit, I beg leave to make the following statement:

" It has been made known to the public by the honorable Secretary of War, and the press has given currency to the fact, that during the past year, by authority of the honorable Secretary and the instructions of General Johnston, commanding the Department of Utah, I have opened two new wagon roads from Camp Floyd to California, either

of which, in connection with the South Pass or Lieutenant Bryan's road from the Missouri river, forms a highway which is shorter to Sacramento or San Francisco than any other known route.

"From data obtained in Utah, it was believed that the difference in favor of my routes was very much greater than is now known to exist; and it was only after I had made a report to the honorable Secretary, on my return to this city, that the last year's report of Mr. Albert H. Campbell, general superintendent of Pacific wagon roads under the Secretary of the Interior, was placed in my hands.

"By this report and the statement of distances which Mr. Campbell has furnished me, I find that very considerable improvements have been made in the old route between the South Pass and the City of Rocks by Mr. F. W. Lander, in the location and construction of a new road, which 'avoids the artemisia barrens of the Green River basin with its deleterious waters; the rugged defiles of Wahsatch mountains leading to Salt Lake City, and the circuitous route by the valley of the Bear river.'

"As these are very important advantages to the heavy ox-emigration trains which annually pass over the plains, and which can only accrue on my route after reaching Fort Bridger, and then are intermitted to a degree at the outset of my routes from Camp Floyd, and then again near Carson Lake, albeit between these points there is an abundance of grass and water, it is very possible that emigrants desiring to travel through to California without passing through Great Salt Lake City or Camp Floyd, for purposes of replenishing supplies, or other reasons, would do best to take the Lander cut-off at the South Pass and keep the old road along the Humboldt river. In thus speaking, however, I do not wish it to be understood that I am in any degree disparaging my routes from Camp Floyd, for it was the decided opinion of the two guides I had with me, and who had been over the Humboldt river road—one of them, Colonel Reese, having several times driven stock over it—and who were, therefore, competent to make a comparison, that my routes were, in respect to wood, water, and grass, very much superior to the old route; and others who have since passed over the routes have reported the same thing. But still there have been reports to the effect that, in consequence of the deficiency of water and grass at some points of the routes, they are not calculated for heavy trains and large herds of cattle; and I cannot, therefore, take the responsibility of diverting the thousands who annually pass over the continent with their immense trains and herds of cattle from the old road, improved as it has been by Mr. Lander between the South Pass and the City of Rocks. Time can only settle which is the best route to the travelling public; and to that arbiter do I leave the decision; only feeling desirous that that route which furnishes the greatest facilities may, as it will, be eventually taken.

"There is, however, no question, that for emigrants who may find it necessary to pass through Great Salt Lake City or Camp Floyd, or tarry in that country during the winter, my routes will be found to be much the nearest to Sacramento and San Francisco, and probably the best in other respects; and that in consequence of their being the shortest and situated in a lower and milder region in the winter than

the old road, they are the best for the transportation of the mail. Indeed, in consequence of the deep snow on some portions of the old road during the winter, the Great Salt Lake and California Mail Company has already been obliged to transfer their stock and build their stations on one of my routes, and on it they are now carrying the mail. My return route to Camp Floyd, in consequence of the timber along it, at points, will also doubtless be the best for the magnetic telegraph.

In this connection, and in deference to General Johnston, commanding the Department of Utah, by whose directions the letter was addressed to me by Major F. J. Porter, Assistant Adjutant General, under date of November 16, I subjoin the following extract; and I do so in order that the letter may accomplish the effect for which it was intended. It was based upon the conflicting reports of persons who had traversed one of the routes, and was received too late to be of use in qualifying the preliminary report, already referred to, which I made to the Secretary of War:

“The Commanding General does not doubt that the routes opened by you are of real value for military and mail purposes, and for the ordinary travel of this country, especially early in the summer and late in the fall for those who may winter in this country or may be late in arriving. They can be advantageously used by parties of emigrants having a small number of animals, and should the emigration be greatly reduced, these roads will probably be used in preference to, and perhaps to the exclusion of, those generally travelled. Time will prove if they will sustain a large travel, but till the country becomes more open and its resources prove abundant, the General desires that no effort be made to turn the main tide of emigration from Lander's road north of this Territory. If once on these roads, and the water and grass prove insufficient, it could not be checked and turned aside in time to prevent immense suffering.”

“I am, very respectfully, your obedient servant,

“J. H. SIMPSON,

“*Captain Topographical Engineers.*”

I consider the strange statement of the letter of Judge Eckles, that “interestedly false representations were made to emigrants,” as forced and out of place to the last degree. I trust that your own knowledge of the character of the officers of the wagon road expedition will deprive it of weight or signification.

The same subject has been referred to in my report to the honorable Commissioner of Indian Affairs.

With the whole case now before you, the propriety of further work on the Interior Department road may be more definitely considered. But if it is still held by you that this road of the Interior Department has been properly laid out, and in view of its adoption by the ox-team emigration, and their absolute endorsement of it, and the endorsement of it by the press of California and Oregon, and the highly responsible officer of the United States army who has given his opinion of it, and the great stock drovers who have so especially advocated it, then if you propose that the sum remaining of the original appropriation

should be expended upon it, I would respectfully suggest the following programme:

In reference to any further expenditures we cannot fail to note the sufferings of the emigrants between the head of the Humboldt river and the settlements at the eastern base of the Sierra Nevada mountains. The law of Congress directs the construction of this road to Honey lake. The emigration usually breaks up at Lassen's Meadows, so called, whence there are not less than three routes to California. All of them pass over a desert upon which the expenditure of money will be of very great service in developing supplies of pure water. Under the law it is plain that the improvements must be made upon the northernmost route; but Mr. Campbell, who has passed over all these lines of travel, and who was entrusted with the important duty of obtaining further information in regard to them, reports to me that the Truckee river line, which is the central, is that best adapted to emigrant travel. A sum of twenty thousand dollars (\$20,000) would develop the line between the bend of the Humboldt and Honey lake, with aqueduct logs and troughs of water for the use of emigrants; but I do not think it practicable to attempt construction along the Truckee route for less than forty thousand dollars (\$40,000.) If either of these works is attempted, I would suggest the employment of F. A. Bishop, esq., chief engineer of the Kirk expedition, who studied these roads with great care, and is well known as an efficient and accomplished engineer. With such service as Mr. Campbell could render him, I have no doubt that any expenditure made upon the western division would be conducted with energy and economy.

While it is not expedient to build the western division from the Missouri border, the citizens of California and Nevada claim that some portion of this government work shall be allotted to them. And, although I never heard that they would object to my supervision of it, I would cheerfully defer to any new arrangements of the sort proposed.

Mr. Wagner's explorations have demonstrated the fact that the Goose Creek mountains may be avoided by an emigrant road. They are one of the chief obstacles encountered by overland travel. The sum of ten thousand dollars would make the improvement required, if connected with either a western or central division party.

In view of the false reports made by Mormon traders, I think it advisable that a small party should be placed at the South Pass at the commencement of the present season. In fact, it is indispensably necessary that emigrants should be correctly informed as to the character of the new road on reaching that important point. For the purpose of carrying out the views herewith submitted, and those of my report on the Indian affairs, made to honorable Commissioner Greenwood, it may seem expedient to you to once more send a small expedition over the road.

If instructions were immediately given, a party could start from the border by the 20th of April, carry out the suggestions of my Indian report, bridge Green river and the smaller streams; and, going on to California, unite with that of the western division the same season, passing the last of the emigration over the desert as improved

by Bishop and Campbell. I consider the improvement of the Goose Creek mountains important; and this could be done by the same party, but the building of a road to avoid them is a more difficult matter, and, as a contingency, must be guided entirely by your view of the application of the fund remaining.

I kept a line of express open between California and the Pass all last season; and the same efficient mountaineer, William Rodes, who travels alone with his rifle and blanket, can do it again, and state at what time the western end of the road is ready for emigrants.

It is my opinion that all large jobs of work on this road can be more cheaply done by contract than in any other manner. I also suggest this mode as enabling you to confine the expenditures to strict limits, the contingencies of wild interior travel often creating large margins when government expeditions are in the field. Direct orders, as to the amount to be expended under contract, would prevent overrunning the appropriation.

Very respectfully, your obedient servant,

F. W. LANDER,

Superintendent, &c., &c.

Hon. JACOB THOMPSON,

Secretary of the Interior.

WASHINGTON, *February 29, 1860.*

SIR: In your instructions, dated St. Joseph's, Mo., April 28, you say: I am instructed by the Department of the Interior to endeavor to improve the line of the overland wagon road from City of Rocks to Honey lake. "I have already furnished you with a transcript of this portion of the honorable Secretary's letter. My experience of your character and acknowledged ability fully justifies me in placing you in charge of an advance exploration to furnish to me information of the country over which it is proposed to take this line. You will, therefore, with the transportation for which you have receipted, proceed directly to Soda Springs where you will either find Mr. J. C. Campbell, or will be compelled to await his early arrival.

"Make a quick trip to Soda Springs, then move more slowly to the country of exploration."

In answer to these instructions, I have the honor to make the following report:

I left the winter camp at Troy, Kansas Territory, April 30, passed Fort Kearney May 8, Fort Laramie May 17, and arrived at the South Pass May 27; making the trip in $24\frac{1}{2}$ travelling days, the other time, of $3\frac{1}{4}$ days, we were delayed at Fort Laramie in changing mules and taking in provisions. On La Bonté creek we were detained by high water, and on Sweet Water, in the neighborhood of Split Rock, by two severe snow storms. Notwithstanding the inclement weather, and the fast time we made, the mules were in good order, the grass on Platte river and on Sweet Water being abundant although short. Mr. C. C. Wrenshall accompanied me to South Pass, and left my party on Little Sandey, for Salt Lake City, to bring to Soda Springs provisions

and the property of the expedition left at Salt Lake City in charge of Mr. J. C. Campbell.

I made a halt on Green river to engage Thomas Pembrun as interpreter for the Western Sha-she-nees. He was encamped on Ham's Fork, on the Fort Bridger road. He was informed by Mr. Wrenshall of my coming and of my desire to obtain his services, and soon after joined us. There was a freshet in all the creeks emptying into Bear river, so that we were compelled to mend the bridges over Ham's and Thomas' Fork and to erect a new one over Smith's Fork, as the readiest means of passing these streams safely with our train. We arrived at Soda Springs on the 10th of June. Thomas Pembrun, the engaged interpreter, here took his discharge; an old disease, having broken out, disabled him from making long rides or undergoing the necessary privations. He also expressed his opinion that the western Indians would not permit us to make the exploration embraced in your instructions.

Hedspeth's road.

We met Messrs. Campbell and Wrenshall on the big bend of Bear river, June 17. After exchanging some mules and receiving a supply of flour we took the *old emigrant road, known as Hedspeth's cut-off*, making a complete survey of it. The road, in many places, is very rocky, the grades very steep, and there is one drive without water of $22\frac{1}{4}$ miles; the grass, in general, was good and sufficient. This road crosses Willow and Dempsey's creeks, tributaries of Porto-neuf, touches "the bend of Porto-neuf," and passing over an undulating country, crosses Marsh creek and over the intervening high hill ranges, to Mountain Willow creek, Lanette creek, and Malade river, tributary of Bear river; here it again crosses same, divides between the Salt Lake basin and the Snake river, and intersects the Fort Hall road on the upper part of Raft creek.

The interview with Po-co-ta-roh and his band, whom we met on Raft creek, and the other Indians in the road, is referred to in that portion of my report relating more particularly to Indians.

Road from City of Rocks to Honey Lake Valley.

We arrived at City of Rocks June 26th. From this point the road passed down to some small branches of Raft creek, all of which will furnish water until about the 1st of August; but a few springs north of the road and Granite Spring at the eastern slope of the dividing ridge, between Raft creek and Goose creek, furnish water all the year round. Grass is abundant north of the line in the upper part of the valley.

The descent to Goose creek over the road as it now exists is very severe, the rocks and steep grades render the passage of it very difficult for stock and wagons.

A reconnoissance for a new road was made by Mr. R. L. Poor, which showed the practicability of a new and much better descent in following down a small spring branch. Goose Creek Valley is trav-

ersed for a distance of 22 miles and furnishes a good supply of grass. A few improvements would be desirable, such as sloping down the banks of tributaries and removing the rocks at the entrance of a short cañon at the head of the creek.

The road, after leaving Goose creek, runs over an undulating country to Rock Spring. There is scarcely any grass to be found, the valley being covered with sage bushes and grease wood. Cold Spring affords in the early part of the summer bottom grass, and the adjacent hills bunch grass; but in the latter part of the season there will none be found till the middle and upper part of Thousand Spring valley is reached. In the middle part of Thousand Spring Valley are some sloughs with alkali water, but only one spring has good water, though not in sufficient quantities for droves of cattle. This will be found further west in Hot Spring creek, coming in from the northwest, the valley of which furnishes grass. A tolerably good road leads over a ridge and down to the headwaters of the Humboldt river. The Humboldt wells have always cold, excellent water, and the vicinity affords both bottom and bunch grass. The road forks here—one branch running on the south, the other on the north side of the river. The north side is much preferable on account of the easier grades over bluffs and better grazing. Humboldt cañon at several points is very narrow. The rock walls being almost perpendicular, by their disintegrations they fall down and sometimes partially obstruct the road.

Improvements have been made, but much is still left to be done. The road on the south side of the cañon passes over some deep-cut gulleys just as dangerous to a wagon. The road is good between Humboldt and Fremont's cañon, but the same condition as in first-named cañon is found here. The road crosses the river four times on gravelly bottom. On Maggie creek the road leaves the river and passes the hills over loose rocks and a few steep grades to Gravelly Ford. This is the nature of the road till it strikes the river again, a distance of ten miles below the ford. There are no difficulties between here and Stoney Point with the exception of sloping down the banks of a spring branch and some sloughs.

The road is good to the dividing line of the Sho-sho-nee and the Pah-utah tribes. It avoids here a small cañon through which the river winds, going over the hills. A good road to Tutt's Meadows, in the bend of the river; a small spring branch has to be crossed; the lower crossing has muddy bottom, the upper is good. A good gravelly road extends to Lassen's Meadows, where it forks again—one part going down Humboldt river to Carson Valley, the other to Honey Lake Valley. A good road runs from the Meadows to Antelope Spring, where good water is found, but grass is scarce; thence over an undulating country and two hill ranges to Rabbit Hole Springs. Water is found in holes from which it can be dipped with a bucket; good road hence to Hot Springs at the eastern border of Mud Lake; a short distance below the springs cattle may be watered, but grass is scarce; through Mud Lake to Granite Springs good cool water can be obtained, and grass in a ravine to the northwest. A good road to Deep Hole Springs, good grass and water; hence to Buffalo Springs, water in holes in sufficient quantity; grass in the neighborhood.

Over a road, rocky in a few places, to the lower part of Bush Valley; water sinks before it emerges out of the cañon and is found only in holes; but the middle and upper parts of Bush Valley have good running water and abundant grass. Leaving this valley we come to Mud Spring; good water; grass will be found in a ravine southeast of the spring. The road, after leaving Mud Spring, is very rocky till it arrives on the dividing ridge, Honey Lake Valley. Honey Lake Valley affords the emigrant every facility to recruit stock, and in the upper part to obtain a supply of provisions. An annexed guide for emigrants gives a synopsis of the above description of the country, with the distances, and other useful information.

Description of the Country north of the Emigrant Road.

The first reconnoissance was made down Goose creek; the valley is narrow, with two cañons in 18 miles, a few spring branches emptying into it, then it widens and runs through rolling hills for five miles, where a considerable tributary comes in. From here the creek runs in the open Snake River Valley, furnishing abundant grass after it leaves the mountains; along its tributaries and on the adjacent hills bunch grass is found.

The north fork of Goose creek runs most of its course in a cañon, has not much grass, and its bottom is subject to overflow from the beaver-dams.

The country north of Rock Spring has, on the dividing ridge between Goose creek and Holmes' creek, good bunch grass; but the bottom is stoney, and therefore dried up by the middle of July. Springs are found on the hill slopes, but few will last longer than the melting of the snow on the mountains, and these are indicated by the thick bunches of willow and quaking aspens.

The dividing ranges between Bishop's creek, Holmes' creek, and Owghee river are the highest mountains in the country explored. They show many peaks in the early part of August still covered with snow, very rugged, rocky, and intersected by deep ravines, through which swift currents of water flow. These ravines have in general a growth of quaking aspens and sometimes of cotton-wood trees. The hill sides show stunted cedar trees and a few of mountain mahogany.

The western main branches of Holmes' creek join in a deep and narrow cañon through which they flow. At the end of the cañon is a valley extending southwards from which a few small creeks come in, but sink about half a mile before they reach the main stream. Hence the creek breaks through a mountain range and flows in a wide bottom for 16 miles, forming many sloughs and some miry places. This lower bottom has good grass, but it soon after enters again a cañon with perpendicular rock walls varying from 50 to 150 feet in height. Close to the cañon and above the fork of an eastern branch we found the only ford with gravelly bottom. The banks were steep above and muddy; width of the creek here 15 feet by 3 feet deep. Eighteen miles further down, where the creek flows in a rolling plain extending to Snake river, its rock walls are still 50 feet high.

Between the mountain range, through which the Humboldt river

breaks and forms the Humboldt cañon and Bishop's creek its next western tributary, is a wide valley covered with sage brushes. Several small creeks break out of the eastern mountain ranges through cañons and deep-cut ravines; but all sink before they reach the middle of the valley. The upper part of the valley of the north fork of Humboldt river is wide, but has only grass along its water courses; the other part is covered with sage brush.

The upper part of Maggie creek has good pasturage on hill sides, but lower down and in the valley itself sage brush alone is found.

The mountain ranges north of Gravelly Ford and Stoney Point have springs and a few creeks flowing in cañons; but they sink as soon as they emerge in that wide valley, sometimes in less than a mile's distance.

The country affords little game. A few antelopes and some deer were seen; rabbits of a large size, sage hens, and grouse are frequently met with. The creeks furnish speckled and salmon trouts and other fish, and their banks are studded with currant bushes, the dried fruit of which is one of the chief supplies of the Indians in winter time.

Facilities for roads through these mountains.

A road from the head of Goose creek, where the present emigrant road leaves it, can be built to Holmes' creek without much expense. From Holmes' creek to the upper valley of Bishop's creek considerable earth excavation is required, and, notwithstanding this, steep grades will be unavoidable. The same is the case to the southern branch of Owyhee river. Hence, a good location can be found to the north fork of Humboldt river; following up a tributary, a good gap leads to the upper part of Maggie creek; from here, we again cross over to water flowing into Owyhee river. There are several gaps of easy ascent. Hence, not much difficulty to crossing the Stoney Point range, where the passes are very rocky and steep; thence through a wide valley to the Pah-ne Utah and Sho-sho-me line.

The cost of building a practicable road for emigrants through these parts will be great, and then it has these disadvantages, that in summer time, when the emigration arrives, the grass will be dry and scarce, and some of the spring branches will not supply sufficient water.

The gain in time and distance will be very inconsiderable, if any. There are so many ridges and narrow valleys or wide bottoms without water, to pass, that I consider the Humboldt River road preferable. When the emigrant or the cattle driver takes the necessary precautions, and does not let his animals drink out of sloughs, which always contain alkali, and when he is careful with his fire, then the grass along the Humboldt river will sustain a very large emigration.

A road with little cost can be built from the Oregon road on Snake river along Holme's creek, either to the Humboldt wells or Thousand Spring Valley. From Snake river to the foot hills not much grass will be found except along the water courses. The first difficulty will be in bridging the creek and going through a cañon about one mile long, the divide between this and Hot Spring creek being low.

The foregoing report contains such information as I have been able to obtain of the country designated in your instructions, and is, with the accompanying map, submitted to your approval.

While detained several days at Soda Springs, I took the opportunity to verify the observations for latitude made in 1857, about the accuracy of which there was some doubt. I found, by repeated observations, that the springs were placed too far south on the former maps, and have made the necessary correction on one of this year's operations.

Indians.

In compliance with your directions to make a brief report of my intercourse with the Indians while in charge of the advance party, I have the honor to say, that after leaving the South Pass we saw only a few lodges of Eastern Sho-sho-nees encamped on Green river. The main body of that tribe were on the eastern slope of the Wind River mountains. Passing from Green river we met none until we reached Soda Springs, where a single Indian came into our camp to trade some beaver skins. He belonged to the Sheepeaters tribe from the headwaters of Lewis Fork, and disclaimed any connection with the Bannocks. He informed me of the departure of the Bannocks for the mountains north of Snake river. It appears that they were afraid of the retaliations of traders or United States soldiers for their depredations committed on Green river and its vicinity last winter.

On the head of Raft creek, near City of Rocks, we were expected and met by Pocotarah and a party of his band amounting to 15 warriors. He remembered the conditional promise given by you in the fall of 1858 to return the ensuing season and bring some presents.

These Indians appeared destitute, almost, of the necessaries of life, and received with the greatest joy the presents I was directed by you to distribute among them. They were given blankets, cloth, handkerchiefs, knives, paints, and many other trifles, to which I added some flour.

Descending to Goose creek we met several men of the band under the chief Ne-met-teh. They were hunting in the Goose Creek mountains. I tried to engage one of them as guide, but the presence of some companies of the United States army, under the command of Major Lynde, intimidated them so much that they left again for the mountains. The same was the case in Thousand Spring Valley, in the upper part of which we saw several bands of Weber River Indians. On Hot Spring creek about 45 warriors came into the camp; inquired our intentions and those of the soldiers; avowed their honesty; that they had never stolen cattle or robbed emigrants. They received presents and departed without further molesting us, although only 6 persons were in camp at the time, the other members of my party being out on reconnoissance. On the upper part of Humboldt river several lodges were encamped. We saw, nightly, their camp fires 3 or 4 miles from the road at the foot of the mountains. Many of them came into our camp begging and went away fully satisfied with the presents bestowed upon them.

Our interpreter, Alek Frapp, collected, on the north fork of Humboldt river, all the Indians around and brought them, at the request of Major Lynde, just returned from Gravelly Ford, to his camp. Major Lynde made an appropriate speech, and presented them with flour and meat. They informed him that most of their tribe had left the Humboldt and gone south to avoid the passing soldiers.

In our reconnoissance, sometimes extending 70 miles north of the Humboldt, we met only a few lodges of Indians, belonging partly to the Sho-sho-nee and partly to the Bannock tribes. The latter came from the Snake river, where they had passed the fishing season. As they had never seen white men in this part of the country they were at a loss what to make of us, but, as I had always some presents with me, they seemed satisfied with the answer that we were here to see the country.

All the Western Sho-sho-nees have been friendly to us, at least they did not molest us nor attempt to steal our mules. Close to the dividing range between the Western Sho-sho-nees and Pah-Utah tribes, we met about a dozen lodges of the latter Indians. They received presents, but as their language is quite different from that of the Sho-sho-nees, I was unable to learn any thing concerning them. These were the last party of Indians we saw, although delayed for some time in camp at Tutt's Meadows, Humboldt river. I have to recommend to your special notice the good conduct of Isaac Frapp, or Sho-sho-nee Aleck, the Sho-sho-nee half-breed, who has been of great service to the party, both as interpreter and as doing the general work of an employé.

In making these explorations and in carrying out your instructions I have been ably seconded by my assistants, Messrs. Poor, Long, and Key, whom I would recommend to you for favorable mention in your report to the department, and Mr. J. C. Campbell for his valuable general assistance; to John A. Justus, who was more particularly in charge of the transportation, I am largely indebted for the admirable manner in which he performed this important duty. With the exception of the two mules which died, he carried the entire stock through to California in good condition.

I am, sir, with greatest respect, your obedient servant,

WILL. H. WAGNER,
*Engineer of Fort Kearney, South Pass,
and Honey Lake Wagon Road.*

F. H. LANDER, *Superintendent
Fort Kearney, South Pass, and Honey Lake Wagon Road.*

	Distance.	
	Intermediate.	Total.
<i>City of Rocks to—</i>		
<i>Granite Springs</i>	12.00	12.00
Around Granite Springs and north of it good grass and water ; the road to the top of the mountain good, but great care has to be taken going down to		
<i>Goose Creek</i>	6.76	18.76
Keep good watch here against Indians. Goose creek down are some good camping places, and up all		
<i>Along Goose Creek</i>	22.34	41.10
Grass and water are to be found. At the head of Goose creek a camp-road leads to the northwest, where a few springs furnish water, and a large open place bottom grass ; bunch grass scarce.		
<i>Rock Spring</i>	12.12	53.22
Water good ; but grass only for the first emigration.		
<i>Cold Spring</i>	5.84	59.06
Deep wells with grass ; bunch grass on the hills.		
<i>Hot Spring Creek</i> , (upper part of Thousand-Spring Valley).....	18.40	77.46
About nine miles from Cold Spring is abundant grass and a small spring close to the road. The other water, in sloughs, contains alkali, and therefore avoid using it. Hot Spring creek, with its upper part, has good water and grass. A few rocky places on the dividing ridge to		
<i>Humboldt Wells</i>	14.90	92.36
Excellent water ; good bottom and bunch grass. A hot spring, some rocky places and crossings in		

	Distance.	
	Intermediate.	Total.
<i>City of Rocks to—</i>		
<i>Humboldt Cañon</i>	4 00	96.36
<p>From this place the road runs along the river to Lassen's Meadows; leaves it sometimes to avoid cañons or soft bottoms; the grass is very abundant, the running water good. But good care has to be taken that animals do not drink out of the sloughs, which, in the latter part of the season, contain much alkali. Mules and horses are sometimes subject to a peculiar disease causing a swelling of the neck and breast. The best preventive is to put rowels through the breast and keep the wound open. Should the animal show any symptoms of swelling, burn with an iron three or four scars, deep and long, along the neck and breast and keep these open with blistering plaster. I was assured by many mountaineers that this is a safe preventive and sure cure. The road good to the</p>		
<i>Crossing of Bishop's Creek</i> Good crossing.	22.64	119.00
<i>Crossing of North Fork of Humboldt River</i> Gravel bottom.	20.50	139.50
<i>Fremont's Cañon</i> Gravel bottom, but rocks in the river bed.	32.00	171.50
<i>Maggie Creek</i>	9.20	180.70
<p>Before crossing Maggie creek a small stream has to be forded; both have grass and good water. The road here leaves the bottom and passes over the hills to Gravelly Ford. There are some springs close to the road, and in the early part of the season good and abundant grass. The road has some rocky places and steep grades down to</p>		

	Distance.	
	Intermediate.	Total.
<i>City of Rocks to—</i>		
<i>Gravelly Ford</i>	19.30	200.00
Good grazing ground up and down the river. The Humboldt runs about five miles farther down through a cañon, therefore the road goes		
<i>Over the Hills</i>	10.00	210.00
<i>Stoney Point</i>	20.00	230.00
The road good. Indians are always in this neighborhood fishing and hunting, therefore keep a good lookout.		
<i>Foot of Hills on the Pah-Utah Line</i>	38.00	268.00
Fine springs on the hill side with good grass ; the valley to the north is covered with sage brush interspersed with scanty grass. Before reaching the hills you pass some sloughs with bad water. The road over		
<i>The Hills</i>	6.00	274.00
is good. This is now the country of the Pah-Utah Indians, a friendly tribe, seldom committing depredations.		
<i>Bend of the River, or Tutt's Meadows</i>	17.00	291.00
At the bend a small spring branch comes in. The lower crossing is sometimes muddy, the upper good.		
<i>Lassen's Meadows</i>	44.00	335.00
Abundant grass on the upper and lower part. I advise all emigrants to rest here a few days to cut grass and take it along. Though water may be had, grass in the latter part of the season is dried up and scarce.		
<i>Through Lassen's Meadows</i>	4.50	339.50
Leave these meadows in the afternoon and camp on		
<i>Antelope Spring</i>	12.00	351.50
The water is very good, but grass scarce. A good road over rolling hills to		

	Distance.	
	Intermediate.	Total.
<i>City of Rocks to—</i>		
<i>Rabbit Hole Springs</i>	15.75	367.25
Water in wells for cooking purposes, but cattle have to be watered with a bucket. The road good to		
<i>Hot Spring</i>	18.50	385.75
On the eastern side of Mud Lake. Animals may be watered here. A beautiful road over the perfect level bottom of Mud Lake brings you to		
<i>Granite Springs</i>	13.75	399.50
Water good, and good grass in a ravine northwest of the springs.		
<i>Boiling Spring</i>	4.50	404.00
Remarkable for its temperature and size.		
<i>Deep Hole Spring</i>	7.25	411.25
Good grass and excellent water.		
<i>Buffalo Springs</i>	16.00	427.25
Road good; water in holes; grass in the neighborhood. Over rolling hills and bluffs we strike		
<i>Rush Valley</i>	9.50	436.75
Upper part of Rush valley contains good water and plenty of grass, and a few rocky places.		
<i>Through Rush Valley to Mud Springs</i>	16.75	453.50
Very rocky after leaving Mud Springs; the lower part of the road very good to		
<i>Honey Lake Valley</i>	17.00	470.50
From Lassen's Meadows to Genoa, in Carson Valley.....		175.50

SAN FRANCISCO, CALIFORNIA,
October 31, 1860.

SIR: I have the honor to lay before you a report of the season's operations, details of which have already reached you in papers transmitted during the summer.

The Indians.

The subject of the Indian difficulties, the causes which produced them, the action of my party in relation to them, and the manner in which the war was closed, are embraced in a long report, which, following your instructions of 1859, I have made to the honorable Commissioner of Indian Affairs.

The Work.

Your instructions have been closely followed as to the erection of none other than permanent works. The only timber structures used were at small springs adjacent to the settlements and where the nature of the foundation precluded other modes of building. In such cases the timber is laid beneath the surface and where the constant saturation of water will prevent decay. At the same places large earth tanks were excavated, which would prove of service to the emigrants could the latter be induced to keep their stock from entering and turning them into pools of muddy water. Some of the emigrants were so improvident as to burn the fences and sills around the tanks.

At the first watering place, called Mud Springs, a paved descent and stoned bottom were all that was required.

At the second, known as Buffalo Springs, a well was sunk about fifteen feet below the surface of the Mud Lakes. Several strata of shells and clean white sand were passed through, but no bed of clay or hard material found suitable for a bottom to the tank. The water which percolated from the spring through the sides of this well was lost in the bottom. A line of wooden troughs was therefore laid below the orifice of the spring, and a tank formed around the troughs with an additional pond for waste water lined with the light surface clay of the Dry Lake. The old spring was opened and cleaned out, and the work left for the emigration to test. The result was, that the emigrants found abundance of water in the troughs through the whole of the dry season, but, from allowing their stock to enter the large adjacent tank, it was rendered muddy.

A trader has recently located at this spring, who has received instructions to prevent emigrants driving their cattle into the tank, which, in addition to the troughs, will always remain full of water.

At Deep Hole Springs, the great natural watering place on the western side of the desert, nothing was required.

At Granite Springs, paved bottoms and sides were placed and several small tanks made with inclined planes for the cattle to descend upon.

A most excellent watering place, with grass sufficient for a laying up ground, for the entire emigration, was discovered six miles northward from Granite Springs, and a new road traced across the desert

and directed to it. It is at this point that the Pah-Utes, in large numbers, surrounded some emigrants and led them to believe that they were to be attacked. The spot is a favorite herding ground of that tribe. After a parley they told the emigrants they might take the grass. "Bye-and-bye big Fa'her pay 'um Pah-Utey."

At Hot Springs, the water, which is abundant, was conducted about four hundred feet to a large reservoir constructed by damming the old channel of a mountain brook. The sides of the reservoir were paved and the bottom puddled to prevent percolation. The water, which at the Hot Springs will boil an egg hard in six minutes, is cooled by the atmosphere in its passage to the reservoir, and is greedily drunk by animals that have crossed the first desert. The stream below the dam is comparatively cool and is good drinking water.

One-half mile from the Hot Springs we were so fortunate as to find a mountain spring of pure water. Here troughs were laid which remained full during the season. A sign-post was erected on the emigrant road, at some expense, from the distance to timber, directing travellers to the new spring.

These minor works having been completed, and the road out from Honey Lake graded, and in several instances changed in location, the party moved on to Rabbit Hole Springs.

This important point is situated about the centre of the Eastern desert. Two or three small springs break out from a hillside destitute of grass, and are absorbed by the sands a few feet distant from the clayey ridge. When passing this terrible range of country in 1859 we endeavored to obtain water enough to make coffee, but after a long and unavailing trial the train started on. We made on that trip a distance of sixty-two miles in twenty hours without grass or water.

On reaching this desolate point the present season, the animals, about one hundred in number, were sent forward to the Humboldt river in charge of Mr. C. C. Wrenshall. He was accompanied by twenty employes. After his departure, light wagons, with their loads, were packed in a corral around the scene of labor, and earth embankments thrown up as a bulwark against Indian attack. Work was then commenced on the springs by a party of fifteen men under an effective guard. Prospect holes were sunk to a depth of twenty-one feet, when the bed-rock and a small stream of water was struck. The prospect was then carried along the bed-rock towards the hill. At a distance of one hundred and eighty feet the springs of the hillside were encountered, affording clear and abundant water. The bed-rock was then uncovered and the earth wasted out into a spoil embankment for a space of one hundred and fifty feet square. This left the highest point of the proposed tanks about twenty feet below the surface of the hill, but with a very gradual slope from the terrace or spoil embankment into the tank. A deep excavation was then made along the highest ridge of the solid bed-rock, and, into this, channels were cut from the hillside springs. The channels and springs, five in number, were then united by a split-stone culvert, laid in hydraulic cement. This work was then closed with the debris of the hillside, after the covering stones of the culvert had received a strong packing of the blue clay of the section.

This clay resembles that found below low-water mark on the Atlantic coast, and used as boxing material to keep the sea out of cellars and reservoirs upon wharves laid below high tide.

After the waters of the springs were thus collected and shaded from the sun, so confined as to pass over a clear rock bottom to the orifices of the culvert and into the excavation, a large reservoir was commenced in the bed-rock. It required about three weeks' labor to perfect this to a tank holding about eighty thousand gallons. A wall was erected and a drain or vent laid, both of solid masonry. Soon after the tank filled the party moved on to Antelope Springs.

On our return, about three weeks later, the water in the Rabbit Hole tank was six feet in depth. A train of three hundred persons and one thousand animals did not materially lower its surface. Aquatic birds, ducks, teal, plovers, &c., &c., had sought the locality, which, in a straight line, is distant from the Humboldt river about thirty-six miles. The large body of water thus collected has had a remarkable effect on the surrounding vegetation. Grass has started on the adjacent desert, and, over an area of several hundred square feet, no individual could have recognised the spot. I consider this one of the most peculiar results I have ever had the opportunity of recording during the conduct of the many explorations and works in the wild interior which I have had in charge.

Antelope Springs, the last work on the line, are twelve miles distant from the Humboldt river.

Prior to the improvement of the Rabbit Hole, as the last point at which good water could be procured, Antelope Springs were justly estimated the most important watering place on the road. The emigrants usually halted there a few hours and grazed upon the adjoining bunch grass. They had, in former years, erected a small earth or mud dam, and a pool of six feet in diameter served for the few horses or more valuable animals commonly watered there by hand.

I thought it practicable to excavate the solid slate ledge to a level platform, sufficient to hold, with a curb wall of masonry, about thirty-five thousand gallons of water. If this were possible, a substantial work might be erected which would afford both the Oregon and California emigrants abundance of water.

The work was commenced and completed in about seventeen days. The walls laid in hydraulic cement have proved impervious to water, and a reservoir now exists which fills up as fast as drained, and can never fail of an abundant supply.

The Stock.

Great credit is due Mr. C. C. Wrenshall, who, during the construction of the last mentioned important works, remained in charge of the animals of transportation at a point on the Humboldt distant forty miles from the camp at Rabbit Hole. It was a portion of the party at the stock camp which captured the Pah-Utes referred to in my Indian report as instrumental in closing the war.

The Explorations.

A large extent of country has been covered in explorations. The report of Wm. H. Wagner, chief engineer, transmitted herewith, will explain the results and some of the perils of this service, which, after my reconnoissances in the north, was pursued entirely under his direction.

March to California, sale of Stock, and closing up of the Exploration.

On our way to California the armistice was made with Winnemucka, which has resulted in the close of the war.

The expedition halted a week at Honey Lake to repair wagons and recruit the stock. It crossed the mountains and reached Marysville in excellent condition on the 8th of September.

The best of the stock was sold at quite an advance on cost. The remainder of the property was disposed of at public auction as soon as properly advertised. From the proceeds of the sales nearly all the employes were paid off and discharged.

From the early completion of the work, it has proved of great service to the emigrants, many of whom, on arriving in the settlements, have taken the pains to compliment the department in the press of California and Oregon for the construction of this western section during the prevalence of an Indian war.

The success of the party may be attributed to your permitting me to retain the efficient and tried officers of former expeditions.

The office-work.

By your instructions of August 30, "it is suggested that, unless you are under an expressed obligation to return certain members of your party to Washington and desire to do so yourself, you wind up your affairs and report your accounts and operations on the road from California as soon as practicable, that the department may be in possession of all the facts connected with this season's work by the assembling of Congress in December next."

On reorganizing the expedition in 1859, I suggested to General Superintendent A. H. Campbell the propriety of increasing the compensation of William H. Wagner, esq., who, under the very inadequate salary of assistant engineer, was performing the important service of chief engineer, and to be sent in charge of an expedition in advance of the party to explore the dangerous Indian country adjacent to the Humboldt river. I also suggested an increase of compensation for C. C. Wrenshall, esq., who was sent in advance to Salt Lake City, there to organize an expedition of Mormon laborers to repair the new road in advance of the emigration. Neither of these gentlemen have received any increase of compensation, although both of them have been of very great service to the expedition during the two seasons in which, at subordinate pay, they have done so much as superior officers towards the success of our field operations. I believe both of these gentlemen should be regarded as entitled to transportation to Wash-

ington, and, as there has been some expense incurred in carrying on the work, under the circumstances of the Indian war, not contemplated in your instructions, the presence of my commissary, James A. Snyder, and disbursing agent, J. E. Burche, esq., may be necessary in Washington in regard to the adjustment of the accounts. Mr. Snyder is another of the gentlemen who, engaged at a low rate of compensation, has been promoted to the important position of commissary, and filled it with great credit to himself and without increase of pay for the last two years.

Although I have private reasons for remaining in California, I also consider it my first duty to accompany my accounts to Washington and remain there during their adjustment. Some expenses have been incurred during the Indian troubles and afterwards, in obtaining interviews with the chiefs of the Pah-Utes, which cannot properly be explained unless I am present, and the accounts of which, under your instructions, I do not feel justified in presenting without a more full detail of the circumstances attending them than can appear in this report.

All my accounts, the Indian and the present report, will reach you, however, according to instructions, prior to the assembling of Congress in December.

With the report of Chief Engineer Wagner of his important explorations of the present season, I send such a sketch map as he is enabled to furnish at such short notice. It may appear expedient to you to have this season's work added to the valuable detail topographical maps, already completed under the superintendency of Mr. Wagner, of the country adjacent to the route extending to the Pah-Ute line. Such pains have been taken and expenses incurred in procuring these data, and they are so valuable to the country, that it might appear an omission not to have them placed upon the finished sheets with the other work, especially as this was apparently contemplated by the following clause of your instructions of April 16, 1860, arranging season's programme: "A detail report of your operations and a map of the road with the adjacent topography will be expected at the close of the work."

Should it be judged expedient by you to finish the mapping by adding to it the explorations of the present summer, Mr. Wagner, as the person most competent to superintend it, from having taken the field notes, can receive instructions on reaching Washington.

I am, very respectfully, your obedient servant,

F. W. LANDER.

Hon. JACOB THOMPSON,
Secretary of Interior.

SAN FRANCISCO, CALIFORNIA,
October 22, 1860.

SIR: I have the honor to submit to you my report of the present season's explorations. The first reconnoissance was made from Honey Lake between the 19th of June and 1st of July. It extended over

the valleys of Antelope and Willow creeks, tributaries of Susan river, through the Madelin plains and Buffalo Creek cañon (Mud Creek by Lt. Beckwith's exploration) to Buffalo Springs.

From Mud Spring a reconnoissance was made to the mountains east and south of it.

From Rush Creek to the divide of this and Buffalo Creek cañon.

From Smoke Creek over the dividing ridge to the desert.

From Buffalo Spring across the desert (Mud Lake) to the mountains and dividing ridge of Pyramid Lake. The larger part of Pyramid Lake was visible, the nearest point only 9 miles distant.

From Deep Hole Springs over the mountains to the Head of Granite creek.

An extensive reconnoissance was made to the Black Rock range and its neighborhood, through the High Rock cañon, returning by the old emigrant road (Lassen's trail) to Rabbit Hole Springs.

From Lassen's Meadows I went north and connected the work of last year at its terminus, the bend of Humboldt river at Tutt's Meadows.

All the highest and most prominent points were taken by intersections, sometimes tested by 4 or 5 bearings; other points were obtained again from these observations, so that an accurate map may be obtained of a country partly unexplored.

We crossed several times the lines of explorations made in 1853-'54 by Lt. Beckwith, Topographical Engineers. Off from his lines I found some deviations, which will explain the difference in the maps in some mountain ranges, course of creeks, and other minor details.

Observations of the variation of the compass were made in the Honey Lake valley, Humboldt river, Black Rock spring, and another point north of High Rock cañon—the last one not with satisfactory result, probably owing to close proximity of mineral ore. The number of barometrical observations is 490, at 20 stations.

Character of country.

A low but rocky ridge divides Antelope from Honey Lake valley; it has no water except what the melting snow in early spring furnishes.

Willow Creek valley is a very good grazing ground for a length of about 17 miles. Some emigrant trains with their stock spent the winter 1859-'60 in its lower part, and a settlement was made in its upper one; but after the commencement of the Indian difficulties in the spring of 1860, the valley being too exposed, was abandoned.

Northeast of Willow creek, low rolling hills, with occasionally high points, enclose perfectly level plains, the water reservoirs of the surrounding hills; they seldom have any other than subterranean outlets; some of them have only a bare bottom without any vegetation, others are covered in spring with grass. Madelin plains show in this way a luxuriant growth of grass, particularly around the springs which come down from the hillsides. The hills are covered with sage bushes interspersed with bunch grass; the mountain sides show the juniper trees. Between Madelin plains and Buffalo Spring desert, grass is

found only along the water courses or around springs. The country is mountainous with steep and rocky hillsides, narrow ravines, and cañons; the water in Buffalo Creek cañon sinks before it emerges from the cañon. The upper part of Smoke creek runs between rock walls from 25 to 60 feet high, but the valley itself is in most places over one mile wide; the middle part at the forks of Rush creek is covered with grass. Smoke creek sinks before it reaches the desert.

The Mud Lakes, or, better expressed, the Granite Creek and Deep Hole Spring deserts, were very likely once the bottom of a lake which lost its water by an earth revolution; neither stones nor any vegetation are found upon its surface. The mountains which enclose these deserts have numerous cañons and ravines. But only a few of these ravines show springs or creeks sinking in the sandy sage girdle which encircles the deserts. A few springs rise in this region, furnishing the traveller with water, and the surrounding bottom, irrigated by their overflow, grass for the animals.

The Deep Hole Spring desert is 25 miles long and about 8 to 10 wide.

The Granite Creek desert extends from Granite creek 15 miles south, about 45 miles northeast, by a width of about 12 to 15 miles.

The Black Rock range, with its eastern terminus, the Black Rock point, is 27 miles from Granite creek. This range with its immediate neighborhood has been, in the last few years, the scene of labors of so many prospectors, expecting to make it a rival to the Carson valley region, that I may be permitted to give an outline of the origin of the researches for gold and silver ore

In the years 1849-'53 a good portion of emigrants from the eastern States took, from the Humboldt river, Lassen's trail, through Black Rock valley, High Rock cañon to Goose Lake and the upper part of Pitt river, thence either to California or Oregon.

As early as 1849 a Mr. Harden found a specimen in Black Rock valley, which long afterwards was found out to be rich in silver.

In the same year Mr. Ben Johnson found native silver north of High Rock cañon.

M. J. Foreman, who travelled the same road in 1851, and Dr. Glaize, in 1852, both found specimens rich in silver ore.

Since that time, but mostly in the last two years, the country has been searched for silver. P. Lassen, well known as one of the earliest pioneers in California, was killed by Indians in one of these prospecting tours at the foot of Black Rock peak. Companies were formed and almost every one brought specimens in, some of which assayed as high as \$1,700 per ton. It is estimated that over 1,500 persons visited and prospected in this country in the spring of 1860. But the Indian war interrupted a more extended and thorough search, as several parties were attacked, their animals driven off, and they barely escaped with their lives.

I have no doubt that in a short time hence rich leads will be discovered, but for settlements the country labors under some disadvantages.

In the upper part of Black Rock valley are several hot and two cold springs—the Silver springs. A small creek runs off from these for

about 6 or 7 miles, then disappears. Farther down the valley are three more cool springs, with their grass, like an oasis in the desert. In the neighborhood of Black Rock point are three hot springs, the water of which, when cooled, is not disagreeable to drink. Some small springs with very good water are found in the northern and southern slopes of the enclosing mountains. In the mountains west of the valley juniper trees of considerable size and quaking aspens are found. On the eastern slope of Black Rock peak are two small creeks emptying east into Mud Lake, the banks of which are studded with quaking aspens, but the southern and western slopes are almost destitute of vegetation.

High Rock cañon is about 15 miles long, in average 500 yards wide, with perpendicular rock walls 180 feet high; water through its entire length in holes.

North from the cañon 6 miles and two miles east of the road, a very remarkable specimen of petrification was found by prospectors in the spring of 1860. It is a petrified tree covering a space of ground with its splinters and smaller pieces of 1,017 feet. There are three, though broken, pieces of 110, 125, and 85 feet lying in one line, the probable diameter about 6 or 8 feet.

We returned by a shorter and better route than High Rock cañon, a place only too favorable for Indian attacks, to Silver springs, thence across Black Rock desert to Rabbit Hole springs and Humboldt river.

The country north of Lassen's Meadows and west of Tutt's Meadows shows the same characteristics as that farther westward—large valleys covered with sage bushes and high granite mountains mostly without any trees.

Water is still scarcer here than in the Black Rock neighborhood; finding water once 12 miles from Humboldt river and again some at Rush creek, at the lower end of Tutt's Meadows.

Humboldt river was very low this season; many places which we found covered with water in the summer of 1859 had now good grass. To this is owing the good state of health of cattle droves coming from the east. None of the emigrants complained, as was formerly the case, about losing animals by poison from alkali.

Minerals.

In the course of my explorations many of the points I visited were rich in mineral ores. Some of the specimens I tested in camp, others I have placed in the hands of a skilful assayer for analysis.

Those I have tested for silver and gold were found to be rich enough for mining purposes. In regard to others, the expense for transportation of the raw material would be too high for profitable labor. Gold, silver, and manganese are found in the Black Rock range; copper in the mountains south of Antelope spring. Platina is said to be found in a cañon 3 miles west of the Antelope spring, also, gold in quartz. In excavating wells at Rabbit Hole spring small scales of gold were found 5 feet below the surface, and in the dry bed of a creek close by prospectors found gold, but there is not enough water to work with. In the sides of the mountains enclosing Honey Lake valley is iron ore

and pyrites of iron. The washings and surface diggings of a small creek south of Richmond, in Honey Lake valley, have been profitably worked for gold during the last two seasons.

Indians.

The Pah-Utahs, after their several defeats, scattered—some over the northern portion of the country around the lakes and some to the mountains along the Humboldt river.

As we came out of High Rock cañon, about 10 a. m., a smoke arose from a small peak, about 8 miles north, close to the road. We camped two miles south from that bluff. In the afternoon, one party guarding camp and animals, the other visited the petrified tree; on arriving there they were shot at from a low bluff not very distant; one of the Indians had a rifle, two others bows and arrows. Immediately after firing the Indians ascended a higher bluff, where they were joined by a good many others. The distance between us was now so great that we did not waste our ammunition by returning their fire.

The next morning we ascertained that they had an encampment about 3 miles east of us in a small valley, but that they had left it during the night in an eastern direction.

Our camps in Black Rock valley were several times visited by Indians, as we repeatedly found their fresh moccasin tracks, but, keeping a strict guard, we were never surprised. Some parties of Pah-Utahs went up the Humboldt river trading with emigrants for ammunition. Many of these travellers had not yet learned of their war with the whites, but most of them refused to trade with them.

For the purpose of trading the Indians were friendly towards the emigrants, but well on their guard against parties coming from the west.

As we came out of the hills into the road below Tutt's Meadows, alarm fires were lighted opposite our camp; and in the course of the afternoon we counted 11 smokes on the highest peaks of the mountain range dividing the Pah-Utah and Sho-sho-nee tribes. They watched us in our course down the river very close, always raising a smoke opposite to our camp, but never attacked us. In all our explorations we did not lose a single animal, although from want of water, scarcity of grass, and long rides they suffered considerably.

Before closing this report I avail myself of the opportunity to express my thanks to the gentlemen associated with me in the engineering department: Messrs. R. L. Poor, M. M. Long, and Ch. F. Hoffman, for the efficiency and assiduity with which they attended to the various duties imposed upon them, and take much pleasure of favorably recommending them to your consideration.

I am, very respectfully, your obedient servant,

WILLIAM H. WAGNER,

Engineer P. L. W. Road.

Col. F. W. LANDER,

Supt. P. O. L. W. Rd.

